**********FLIGHT INSTRUCTOR BULLETIN**********

BULLETIN NUMBER 7

TASK: Situational Awareness

SUBTASKS: None

OBJECTIVE: To provide guidance to the flight instructor in developing a training program that includes situational awareness.

STANDARDS: N/A

CONDITIONS: N/A

DESCRIPTION:

1. The Facts

We don't know how many aircraft accidents or failed FAA checkrides were a result of the pilot not being aware of what was going on around them (Situational Awareness). There is a direct relationship between situational awareness and safety. It is a fact, pilots who have higher levels of situational awareness are safer pilots.

The Florida Association of Flight Instructors offer the following information to help the flight instructor develop the student's abilities to be more situationally aware, resulting in an increased passrate as well as a safer pilot.

2. Definition

The word "situation" is defined as a position or condition with respect to physical surroundings and circumstances.

The word "awareness" is defined as being cognizant of, having knowledge of, being acquainted with, making an observation, or determining causes.

Therefor the term "situational awareness" is having knowledge of the factors and conditions of a person's surrounding and circumstances after making an observation.

3. Let's first discuss what factors detract from a pilot's ability to maintain situational awareness:

A. Cockpit Distractions. This is something that draws or directs one's attention to a different object or in different directions at the same time. There are three (3) categories of cockpit distractions:

a. Operational distractions are distractions that are directly related to or caused by required flight tasks (checklist usage, traffic watch, studying approach charts, etc.).

Corrective action: Teach your student to prioritize the tasks to be accomplished in order of importance. Careful planning and anticipating pending tasks helps prevent distractions induce by attempting to do too many tasks at once.

b. Non-operational distractions are not related directly to the pilot's primary flight tasks (casual cockpit conversation, accommodating a passenger, etc.).

Corrective action: Teach your student to use and brief the passenger on the sterile cockpit concept (no unnecessary talking during critical phases of flight such as takeoffs, landings, emergencies, etc.).

c. Physiological distractions are those distractions brought on by emotional or physical problems (use of medication, illness, fatigue, alcohol, etc.).

Corrective action: Students should be taught to follow the I'M SAFE checklist from the FAA Advisory Circular AC60-22 before each flight. In addition, awareness is key to becoming more in tune to our physical and mental state.

B. Stress. This is a physical, chemical, or emotional factor that causes bodily or mental tension. The following are typical factors that can cause stress for a pilot:

a. Pilot's workload such as flight planning, flying the aircraft, paperwork, etc. are all tasks that are part of normal pilot's duties, but if not managed properly can increase stress.

Corrective action: Teach your students proper pre-flight planning and cockpit organization.

b. Delays such as weather, maintenance, and Air Traffic Control (ATC) can add to the pilot's level of stress. Waiting creates anxiety which increases stress.

Corrective action: Plan for the unexpected, give yourself plenty of extra time, if possible.

c. Physical problems such as fatigue, excessive noise, vibration, heat, cold and illness are all known stress produces.

Corrective action: Exercise, proper diet, rest, and drink plenty of fluids. In addition the use of headsets and the proper setting of radio volume can reduce unnecessary noise.

NOTE: Caffeine tends to increase urine output, causing dehydration.

d. Personal problems are often a major source of stress in our lives. Financial and family difficulties are common factors in this type of stress. Such problems often have a tendency to increase depression, anxiety, irritability, and sometimes displays of anger.

Corrective action: Focus on flying and leave the family problems on the ground. If the family problem is sever, such as divorce or a death, the pilot should reconsider if it is appropriate to make the flight.

NOTE: A pilot who is suffering from stress tends to expend unnecessary energy, in turn reducing the

pilot's efficiency and ability to handle normal tasks. In addition, the pilot tends to fixate on single objects, forgets or omits procedural steps, and accepts lower standards of performance in him/herself and others.

4. What can you do?

We offer several suggestions:

A. Flying Skills. We must develop our student's physical flying skills. The more time the student spends physically flying the aircraft, the less time he/she has to devote to the mental aspects of flying. When all student's energy is focused on simply controlling the aircraft, little time remains for other tasks such as traffic watch, navigation, communication, etc..

B. Experience. The student must gain experience through quality training. Training is the most efficient way for the student to build experience and create a mental file that helps the student to establish how conditions and events are interpreted and how the pilot is to respond to them. The following training tips can be used to build the student's experience:

a. Simulator or Ground Training Device. Use of a ground trainer or simulator allows the flight instructor to create in-flight situations in a controlled environment without compromise of safety.

b. Backseat flight. A student can observe a flight lesson of another student from the backseat, if appropriate.

c. Ground briefings. The flight instructor should schedule ground briefing time to discuss situation scenarios that may occur on a flight.

d. Ground School. Knowledge is the key, students should attend formal ground schools, if possible.

e. Emergency procedures. Proficiency and confidence is gained by constantly reviewing and practicing emergency scenarios. In addition, many emergency problems that a student may be faced with can be solved simply by the student's thorough understanding of the aircraft systems and how to troubleshoot. The sooner the student recognizes the problem the sooner he/she can deal with it.

e. Recurrent training. It is imperative that a pilot remains both current and proficient. Flight instructors should encourage their students to get recurrent training after they obtain a certificate. This can be accomplished through Instrument Competency Checks (ICC), Pilot Proficiency Awards Program (Wings), aviation safety seminars, etc.

C. Cockpit Management. Train your student to have a well organized cockpit. Items such as checklists, navigation log, charts, pens/pencils should be readily available for use by the pilot. All pilots should form the habit of "good housekeeping"; it will pay off in safe and efficient flying.

D. Preflight Planning. With proper pre-flight planning, many problems that a pilot will face are solved before going to the aircraft. Establish a habit with your student of accurately planning time, speed, distance, and fuel consumption. Determine takeoff profiles including takeoff speeds, distance, obstacle clearance and runway conditions for each flight. In addition, have your

student calculate the weight and balance before each flight, which may from time to time include various weight changes.

E. Communication Skills. Teach your student proper communications skills. Good communication skills contribute substantially to establishing and maintaining high levels of situational awareness. Pilots that communicate well make fewer mistakes, get to the heart of a problem faster, and are more likely to recognize errors.

F. Wind conditions. Pilots unaware of the wind direction and/or velocity have overshot the final approach, landed long, did not reach the minimum descent altitude (MDA) prior to reaching the airport, gotten lost on crosscountry and experienced fuel exhaustion. The instructor must ensure the student understands all aspects of the effects of various wind conditions.

G. Clues and warnings. Pilots often fail to recognize clues or warnings that situation awareness is slipping away. The instructor must teach the student to set goals and targets for each flight. Failure to meet any plan goal or target may be a clue to the loss of situational awareness. Pilots must be able to detect and correct for deviations from these goals and targets.

H. Ambiguity. An ambiguity results anytime two or more independent sources of information disagree. The instructor must teach the student to monitor more than one source of information and if those two sources disagree the student must work the situation to a satisfactory conclusion.